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ABSTRACT

If educators and public broadcasters are to realize their potential for providing high quality educational and cultural material to the public, they must be aware of current and upcoming technologies and work in concert to achieve their goals. Several alternative delivery systems are currently available to help educators and broadcasters expand their clientele and lay the basis for alliances among broadcast facilities, government agencies, and educational institutions. These include: (1) Instructional Television Fixed Services, a special type of narrowcast television which can transmit up to four channels to predetermined reception points; (2) cable television, which has potential for in-school instruction, professional accreditation courses, and two-way capabilities; (3) slow-scan or compressed video, which involves the one-way transmission of still pictures with two-way audio; (4) Subsidiary Communications Authority subcarriers, which require specially tuned receivers; and (5) home video and audio systems, which are used by many schools as primary educational vehicles. While offering new opportunities, these alternative systems require educational institutions to address questions related to target audiences, course content, costs, materials availability, programming, and selection of courseware and materials. Most importantly, the question of operational support must be addressed before considering the use of these systems. (HB)

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A POTENTIAL PARTNERSHIP FOR EDUCATION AND PUBLIC BROADCASTING

A Paper Presented to the
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by

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ALTERNATIVE DELIVERY SYSTEMS: A POTENTIAL PARTNERSHIP FOR EDUCATION AND PUBLIC BROADCASTING

In a speech made in April of 1981 on the dedication of a new library at the University of Michigan at Dearborn, Secretary of Education Terrell H. Bell stated:

> Education is in danger of losing the Communications Revolution. Fifty- or one hundred-channel interactive cable television, teletext, the videocassette and videodisc, microcomputers, direct broadcast satellites, are not only the future inevitabilities, some are present realities. . . . But at all levels, the educational community, plagued by rising costs and falling enrollments is locked in battle with the present. The future is being built without us.

Secretary Bell's assessment of education's plight appears to be true as more and more elements of the private sector are investing in training, and major corporations such as Sperry Univac are making announcements that they are "taking education into their own hands."[1]

The "plight" of education in the Communications Revolution is mirrored to a certain extent in the current status of public broadcasting. In its report on the Future of Public Broadcasting, the Carnegie Commission charged public broadcasters to:

> "broaden and become more flexible in [their] approach to the delivery of programs and services to the American public" in order to "expand audience programming options, provide for greater listener and viewer convenience, and make possible programming and services aimed at smaller audiences with specialized interests and tastes."[2]

If the educational community and public broadcasters are to realize our full potential in the coming days, we must at least achieve and maintain a cursory knowledge of the technologies looming on the horizon as well as those currently in use. We must also build an alliance which will enable us to work together toward achievement of our separate, but similar, goals.

Today, I hope that we can explore several alternative delivery systems and identify ways in which we can work together to achieve a common goal: delivery of high quality educational and cultural material to the public.

I would like to begin by reviewing with you several of the alternative delivery systems that are technologically available to us including: Instructional Television Fixed Services (ITFS), cable, slow-scan video, FM subcarrier, and home video and audio systems.

Instructional Television Fixed Services (ITFS)

ITFS is a special type of narrowcast television designed specifically for the distribution of instructional materials. Established by the FCC in 1963, ITFS is a "point-to-points" system for transmitting as many as four channels to predetermined reception points such as hospitals, libraries, schools, or industrial facilities. The primary source of programming for ITFS has traditionally been copied material, especially videotapes; but the increase of satellite and cable distribution systems and the increasing interests of business and industry training have opened up many other programming possibilities. ITFS is distributed over the air via microwaves and received by special antennae which are within line-of-sight transmission.

A survey completed in 1980 by the Center for Excellence, Inc., revealed that there are eighty-two (82) active ITFS operations in the United States with 492 authorized channels.[3] The TAGER system in Dallas uses ITFS for graduate education; the Stanford University system established in 1968 uses ITFS for continuing education; and the San Francisco Archdiocese operates an ITFS system for educational purposes in the archdiocese as well as for the Senior University of the Bay Area, where senior adults develop and produce programming for other senior adults.

Cable

Cable television was originally developed to bring television signals to remote areas that were unable to receive satisfactory "off-the-air" signals. Today, 18 million homes in the United States are wired for cable--23% of all U.S. homes--and the prediction is that 46 million homes will be wired by 1990. There are currently 5,000 different cable companies in the United States, but the majority of franchises are operated by 25 major companies.[4]

Cable offers us many opportunities for reaching new audiences and students including:

in-school instruction
general education programming
professional accreditation courses
adult education - credit and noncredit
community/cultural programming.

One of the appealing aspects of cable television is the two-way capability which is technologically possible. Today, roughly 40 to 50 cable systems have activated two-way capability. The best known interactive system is problably the QUBE system in Columbus, Ohio, where 29,000 subscribers have access to town meetings, marketing and interactive education via their own television sets.

Slow-Scan or "Compressed Video."

"Compressed video" refers to frequency or bandwidth compression and, practically speaking, involves the one-way transmission of still pictures with two-way audio - a type of "electronic slide projector." To accomplish this feat, a standard television signal is electronically compressed to the size of an audio bandwidth. This process causes the picture to be stretched in time so that the regular 30-picture-per-second rate of conventional television becomes a one-picture-per-10 seconds rate for slow-scan.

Once the picture is compressed, it can be transmitted over cable, via an FM subcarrier frequency, or over regular phone lines. At the reception point,

the signal enters a video expander which restores the video to its original bandwidth and reconstructs the image on a standard television monitor.

The major use of slow-scan video has traditionally been continuing medical education and inpatient medical care, with projects like the Aroostock County Telecommunications Project in Maine. This project connects the rural hospitals in Aroostock County with a two-way voice and video system so that training can efficiently take place and medical care can be maximized. Recently, there have been new investors in slow-scan video including IBM, Ford, and Proctor and Gamble who use slow-scan video to accompany administrative teleconferencing.

SCA (Subcarrier)

Subsidiary Communications Authority or SCA is the name given to a portion of the FM bandwidth which the FCC has set aside for broadcasting to target audiences. These subcarriers can be used alongside the main frequency without audio disturbance given proper engineering design, but can only be received by specially tuned receivers.

At Rio Salado Community College we are currently using one of our subcarrier channels for a program called Sun Sounds which is a radio reading service for the print-handicapped. Through grant monies and private donations, special receivers are placed in the homes of people who are blind or who have some other handicap that prevents them from reading the printed page.

There are other institutions which use their subcarrier channels for continuing education. One such institution is Albany Medical College where the SCA is used for undergraduate, graduate, and continuing education.

Home Video and Audio Systems

For clarification purposes, I would like to define home systems as "electronic equipment that enables the consumer to record and/or play back sounds and images." These systems include videocassettes, videodiscs and audiocassettes.

In 1980, the educational community accounted for 45.4 million dollars in sales, making the videocassette a very popular educational tool.[5] The videocassette recorder has also become a very popular consumer item in the last few years. Many schools and colleges are using videocassettes as a primary vehicle for education. One such institution is Black Hawk Community College where the Study Unlimited program gives students access to telecourses in the public library.

More and more businesses and industries are also using videocassettes for training purposes. Bankers Life and Casualty Company has established its own national video network "to protect itself from inadequate training." Georgia Pacific Corporation has 290 locations in its video network, reaching 4,000 employees. In 1982, Georgia Pacific plans to build its own state-of-the-art studio.[6] The Realtor's National Marketing Institute recently developed its own 14-module video series, spending $500,000 to create the first five modules. The Institute estimates its potential audience to be in the neighborhood of 120,000 people.[7]

The videodisc is another home system available on the market. There are currently two incompatible videodisc technologies with a third to be introduced later this year. These three systems are:

1. Laser optical system marketed by Magnavox and Pioneer
2. Capacitance Electronic Disc (CED) marketed by RCA
3. Video High Density/Audio High Density (VHD/AHD) grooveless capacitance system to be marketed by JVC.[8]

The laser optical videodisc can offer many advantages over the capacitance system. First, it is designed to present pictures in both still and motion modes--including slow motion with no distortion of the picture. Second, the optical videodisc has two parallel sound tracks that can be used to record commentary on two different levels; or in two different languages; or one track can be used for questions and the other for answers. Third, the optical videodisc has the capability of fast forward and fast reverse and can stop on a single frame. Finally, the optical videodisc lends itself beautifully to hook ups with microprocessors.

The University of Nebraska and the Nebraska Videodisc Design/Production Group have developed seven (7) instructional courses for videodisc; Brigham Young University has also been active in this area; and once again, private industry is also using this delivery system for training. IBM has established 36 Guided Learning Centers nationwide which uses videodiscs for customer training. In 1980, 21,000 people were trained in these centers.[9]

Audiocassettes are inexpensive to buy and duplication is made easy with the use of high-speed duplicators that can make a copy of a 60-minute cassette in roughly two and a half minutes; and the advent of variable speech control units has opened up many uses of audiocassettes. These units can vary the speed of an audiocassette from 60% of normal speed to two and a half times normal speed without the "chipmunk effect." This means that good listeners and advanced students can greatly increase their rate of listening for more efficient learning; and that people who may use English as a second language, foreign language students or people with learning disabilities can greatly slow the rate of speech.

At Rio Salado Community College we offer entire courses by audiocassette, giving the student a great deal of flexibility. At Western Connecticut State College class lectures are available in variable speech modes for foreign language studies; and De Long Jr. High in Wisconsin uses the variable speech machine in reading classes. Use of the variable speech has increased reading ability an average of 50% among junior high students at De Long.[10]

In the last few minutes I have by no means touched the myriad of delivery systems available. Teletext, videotext or videodata, computers, broadcast radio and television, freeze-frame video, telephone delivery systems, teleconferencing, and satellites individually and in numerous combinations offer many new and exciting challenges for us in education and public broadcasting.

What does all this mean and where do we go from here?

New Opportunities

First, these systems mean new opportunities:

1. new opportunities for public broadcasters to develop local programming to meet local needs.

2. new opportunities for the educational community to reach students who might otherwise be unable to take advantage of college and university courses and services.

3. new opportunities for broadcasters to reach audiences which have never been served or who are underserved, thus creating new sources of revenue.

4. new opportunities for facilities sharing among educational institutions, industry and public broadcasting.

New Alliances

Secondly, these alternative delivery systems mean new, or renewed and strengthened alliances among broadcast facilities; city, state and federal government departments and agencies; educational institutions at all levels; social service agencies, police departments, fire departments and other profit and nonprofit institutions. There are also alliance possibilities with business, industry, and other elements of the private sector.

New Questions and Decisions

Thirdly, these alternative delivery systems mean that we must ask new questions and make new decisions. We must ask ourselves: "Who are we trying to reach?" Is our target audience the distance learner or the homebound person who simply has no traditional classroom option and, thus, relies entirely on alternative delivery systems for instruction? Are we targeting for the "traditional" college student? Is the population we are seeking to serve credit-seeking or are they primarily interested in lifelong-learning experiences? Is the target audience centrally located such as in a business, industrial plant or a prison? When we begin to answer these questions we see that a certain alternative delivery system may suit our target population better than another.

For example, if our population is the distance learner or homebound person who is totally relying on alternative delivery instruction, we cannot provide the total program required by open circuit television. There just is not enough software available and it would be too costly to produce. Probably a better approach would be a combination of delivery systems such as audiocassettes, correspondence courses, open circuit television and radio, and teleconferencing.

We must ask ourselves: "What is the nature of the course content we plan to deliver?" Does the course content require the student to "observe" certain phenomena or events? If so, one of the visual delivery systems should be explored. Is the content primarily oral in nature? A televised vocabulary or music appreciation course would be difficult to produce and a needless waste of time and money. Does the course content "require" or necessitate student/faculty or peer interaction? If so, one of the alternative delivery systems with interactive capabilities such as cable, ITFS or teleconferencing may be used.

A third question, and probably the one we all ask first is: "How much money does it cost?" ITFS may be exactly what your institution needs, but if you do not have the required budget to make it operational it is not the alternative delivery system for you. You may choose broadcast radio over television because the software is less expensive to produce and air time is usually less costly.

We must ask ourselves: "What programming software or courses are available which meet our needs?" The videodisc may be your answer to the first three questions we have discussed, but there are a limited number of courses on videodisc and they are not yet available for distribution. On the other hand, there are some excellent video courses available for use on open broadcast television, cable, ITFS, or in videocassette format. The best delivery system in the world is worthless if you have nothing to delivery.

We must ask: "What kind of programming do we deliver?" In a study funded by the Fund for the Improvement of Postsecondary Education in conjunction with the American Association of Community and Junior Colleges, Dr. Penelope Richardson explored collaborative relationships between community

colleges and broadcast stations. In her study, Dr. Richardson asked participants to rate the presence and importance of eight factors which had been previously identified as being integral to successful station/college relationships. The highest rated factor was quality of instructional materials.

Interestingly enough, however, there was no clear agreement on what that meant.

> The definition which received the highest mean rank was: "Materials have substantial education content and meet the standards of the colleges," but close behind was: "Materials meet learner needs, stimulate interest, have broad appeal, and attract large, general audiences."[11]

There is a wealth of software available for use by community colleges and universities, and over a million dollars is spent each year on telecourse production alone. The central question still remains: What courseware do we use?

None of us can afford to program "just anything." Alternative delivery systems, by their very nature, have a high degree of visibility and must, therefore, be above average in instructional quality. In addition, courses must be designed specifically for the delivery system so that students have successful learning experiences. A delivery system with nothing to deliver or a delivery system with poor quality courses can cripple an institution that is trying to reach new and underserved populations.

Some points to consider when previewing courseware or programming for use via any alternative delivery system are:

1. What is the local need or demand?
2. Is there a total instructional package complete with textbook and/or study guide?
3. Does the material encourage active participation by the student or does it allow the student to become passive?
4. Is the media component interesting and well produced?
5. Is the course well designed with specific learner objectives?
6. How flexible are the course materials? Can you use a variety of delivery systems or can the materials be easily adapted to meet your specific needs?

7. What is the longevity of the material?
8. Do you have faculty or content experts available to work with students in the subject matter area?

We must also ask ourselves: What is operationally required to luanch the delivery system and to keep it afloat? Operational support is probably the most overlooked and underrated factor in implementing alternative delivery systems. This may be because few people beside the students realize its importance. Students enrolled in alternative delivery courses and faculty teaching these courses require much more support than do teachers and students in the classroom. This support may include everything from simple duplication and dissemination of newsletters to highly sophisticated computer-managed instructional systems like the RSVP system utilized by Miami-Dade Community College.

Each institution differs in the amount and kinds of support it is willing to provide. At Rio Salado Community College, we have a staff of six people who provide various kinds of assistance to students and faculty. Included among the support functions provided to students and faculty is the use of an Apple II microcomputer to do all demographic analysis of students, all faculty and course evaluations and all test scoring.

Not every institution is the same; each student population is a little different; and not all courses require the same amount of operational support. But--and it is a very big "but"--the question of operational support must be addressed whenever an institution is considering the use of an alternative delivery system.

CONCLUSION

Finally, these alternative delivery systems and the many ways in which they are currently being used mean we must become actively involved in their development and use. Perhaps Dr. Bernard Luskin, President of Coastline Community College, was right when he said that the new technology has moved along so fast that questions like "Why haven't we?" only serve to delay our understanding. If this, indeed, is the case, we should each begin, however gradually it need be, to utilize all kinds of alternative delivery systems. Public broadcasters and educators must join forces to awaken imaginations and creative talents of faculty, producers, administrators and management.

The technology is here. It is being used; and it will be more widely and better used in the future. We have a lot to say to a variety of audiences. I cannot encourage you strongly enough to seek out new ways to convey your messages, to identify groups with similar goals, and together pursue those new delivery systems as valuable additions to your role as public broadcasters and educators.

END NOTES

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